



# 3 control soil erosion and rainwater runoff

## Protect the Chesapeake Bay

Like farmers, homeowners play an important role in protecting our soil and water resources, especially the Chesapeake Bay. This series of fact sheets highlights various conservation measures—best management practices—that farmers use to produce healthy crops and protect water quality in the Chesapeake Bay and its tributaries. Homeowners can apply these same conservation measures to home, lawn, and garden projects. Working together, we can make a difference for the Bay. For more information on ways to improve your lawn or garden and protect the Bay, contact the organizations listed on the back panel.

Maryland Department of Agriculture



## Soil Erosion and Rainwater Runoff Harm the Chesapeake Bay

Each year, tons of topsoil leave the land and end up in streams, rivers, and the Chesapeake Bay. As we have cleared the land, paved roads, and built homes, our waterways have lost much of the natural protection that grasses, wetlands, and forests provide against rainwater runoff. When the rains come, runoff carries not only topsoil, but fertilizers, pesticides, oils, and other pollutants into the Bay system. Once in our waterways, these contaminants cloud the water, stress aquatic life, and disrupt stream habitats.

Farmers use a variety of methods to protect waterways from rainwater runoff and soil erosion. A well-planned landscape can also help prevent nutrient runoff and erosion. By following a few, simple conservation measures, homeowners can do their part to help control runoff, minimize soil erosion, and safeguard water quality.

### Spot Erosion Problems

Gullies are an example of soil erosion in its most destructive form. But not all erosion problems are easy to spot. It takes a trained eye. Start by noting the way water flows in and around your lawn or garden. Does rainwater rush uselessly down driveways and walkways

and into nearby storm drains? Or does it penetrate slowly into the soil to nourish thirsty plant roots? Knowing where the water goes is the first step in tackling erosion problems. Here are some other important clues that may indicate soil erosion problems on your property:

- Muddy or cloudy water in the driveway, road, or gutter following rain or watering.
- Bare soil spots on lawns and along property lines, walkways, and driveways.
- Newly exposed tree roots (although some species, such as maple, grow this way naturally).
- Sudden appearance of stones or small rocks in driveways or other paved areas.
- Beginnings of small rills or gullies on sloped areas.
- Deposits of fine silt or soil in low-lying areas.
- Windows and outside walls splashed with soil.
- Fallen trees on steep hills and in stream channels.
- Cloudy or muddy appearance of streams, rivers, or other nearby bodies of water.

### Redirect Water

When rain falls on hard surfaces such as patios, walkways, and driveways, it is easily channeled into nearby storm drains, streams, and ultimately the Chesapeake Bay. Encourage water on your property to move slowly over the soil so that most of it seeps harmlessly into the ground.



- Divert rainwater from roofs, driveways, and walkways onto grass to permit gradual absorption.
- Use a concrete splash block or stones at downspout outlets to reduce soil erosion by water.
- Use grass swales—low sloping areas on your lawn—to move water from one area to another.
- Plant a rain garden (*see photo, left*) using native plants in a low lying area of your yard to allow stormwater to infiltrate slowly into the ground rather than running off into the nearest storm drain. Contact the Home and Garden Information Center (HGIC) at 1-800-342-2507 for advice.



Photo courtesy of APWA Reporter, September 2005.



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Cover the Soil

Bare soil is highly susceptible to erosion by both wind and water. Reestablish vegetation as soon as possible, whenever soil is exposed.

- Seed newly graded areas immediately after construction is completed. Grass clippings, bark mulch, straw, or other temporary covers will reduce erosion until permanent cover can be established.
- In heavy traffic areas where plants cannot be used, use permeable materials such as stone, bark mulch, landscape fabric, bricks, or flagstones.
- Protect newly planted trees and shrubs with a two to four inch layer of mulch that is no higher than the heel of your hand and extends, if possible, to the tree's drip line. Keep mulch three to four inches away from the trunk. This will help keep the bark dry and limit hiding places for rodents that chew on bark.
- Plant windbreaks of trees or tall shrubs to reduce soil erosion by wind and provide habitat for wildlife.
- Use compost on flower and vegetable gardens to enrich the soil. Mulch shrubs, trees, and bare soil along hedges to reduce erosion.
- Plant cover crops in vegetable and flower gardens in the fall to keep the soil covered and reduce the risk of erosion. Cover crops also increase organic matter in the soil and tie up leftover nutrients. They should be tilled under at least two weeks before spring planting. Annual ryegrass, winter wheat, crimson clover, winter radish, and oats are examples of cover crops that you can use.



Correct way to mulch.



Incorrect way to mulch —Volcano.

Stabilize Slopes

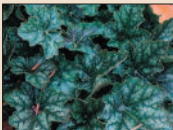
If you live on a steep slope, you might want to consider constructing a terrace system on your hillside. Terraces break long slopes into shorter ones and usually follow the contour of the hill. As water makes its way down a hill, the terraces serve as small dams to intercept water and soil. Terraces can be planted with a variety of native and beneficial ground covers and plants that control erosion and don't need much care. Here are some suggestions:



ALLEGHANY PACHYSANDRA  
*Pachysandra procumbens*



This evergreen perennial is native to the southeastern United States. White to pink flowers appear in early spring. Spreads by underground stems. Prefers moist soil.



ALUMROOT Rock Geranium  
*Heuchera americana*



This semi-evergreen plant tolerates dry to moist soil. Native to Maryland.



CHRISTMAS FERN  
*Polystichum acrostichoides*



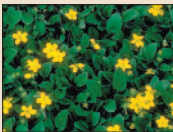
This native Maryland fern stays green all winter. Its distinctive fronds are sometimes used in holiday decorations. Prefers moist soil.



FOAMFLOWER *Tiarella cordifolia*



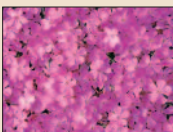
This Maryland native is named for its white, foamy-looking flowers. Grows easily and spreads rapidly but is not considered invasive. Prefers moist soil.



GREEN & GOLD  
*Chrysogonum virginianum*



Prefers dry to moist well-drained soil. Produces yellow flowers from May to October. Native to Maryland.



MOSS PHLOX *Phlox subulata*



This low growing semi-evergreen produces a colorful groundcover mat in early spring. Drought tolerant. Native to Maryland.



WILD GINGER *Asarum canadense*



Prefers moist, slightly acidic soil and very shaded conditions. Spreads by rhizomes. Native to Maryland.



WINTERGREEN  
*Gaultheria procumbens*



Evergreen plant that produces tiny white flowers in May and scarlet berries in the fall. Prefers moist soil. Forms a low mat six inches in height. Native to Maryland.

key: ○ sun ◐ partial shade ● shade

Images on this panel provided courtesy of Horticipia.



Photo courtesy of USDA NRCS.

Choose the Right Surface

When rain falls on hard surfaces such as walkways or patios, it is readily channeled to storm drains, streams, and ultimately the Chesapeake Bay. Slow down runoff by reducing the amount of impervious hard surfaces around your home.

- Space boards on new decks to allow water to drain into the ground below.
- Use bricks, flagstone, or interlocking stones set in sand for new patios or walkways instead of impervious materials, such as concrete.
- Use gravel, crushed stone, or new porous paver stones for driveways.
- Use raised beds for gardens. Build frames from wood, brick, or block to help minimize soil erosion and runoff from your garden.



Keep It Green

Design and maintain landscapes that lessen the potential for rainwater runoff and increase the value of your home.

- Plant trees, shrubs, and ground covers as a buffer around your yard and in bare areas to soak up nutrients and reduce runoff.
- Mature trees are an asset to your home, neighborhood, and the Bay. Preserve them.



- Choose a level site for a garden. If you must sow on a hill, plant vegetable rows across the slope, rather than up and down. This will help slow down rainwater runoff and reduce soil erosion.
- Select appropriate plants for your yard. When reestablishing vegetation, be certain that soil, sunlight, drainage, and moisture are adequate.
- For sunny areas, don't select grasses that need a lot of water. Turf type fescue is both drought and pest-resistant. Contact the HGIC at 1-800-342-2507 for recommendations.
- Choose native plants or select plants that are non-invasive, low maintenance, and disease and pest resistant.



Use Common Sense

Everyone can help protect our waterways from soil erosion and rainwater runoff by following a few, simple, common sense guidelines when working outdoors:

- Fertilize lawns in the fall, not the spring. Follow all label directions.
- Never use fertilizers to de-ice walkways and driveways.
- Don't hose down driveways or sidewalks—it wastes water. Use a broom or blower instead.
- Recycle grass clippings by leaving them on the lawn to “grass-cycle.”
- Compost longer grass clippings and leaves—never allow them to wash into roadways, where they can easily reach storm drains.
- Avoid getting fertilizers and pesticides on sidewalks and driveways.
- Use kitty litter to soak up liquid spills and dispose in a tightly sealed plastic bag. Sweep granular spills back onto the lawn or garden.
- Wash cars on grass or gravel surfaces to prevent soapy water from reaching storm drains.
- Protect waterways—pick up after pets.

